

A FAIRMOUNT MINERALS SUBSIDIARY

July 24, 2009

State of Illinois Environmental Protection Agency Division of Air Pollution Control Permit Section P.O. Box 19506 Springfield, IL 62794-9506

RE: Permit to Construct (PTC) Application Source ID No. 099804AAB – Technisand, Inc. Wedron, IL Facility

To Whom if May Concern:

Fairmount Minerals, Ltd. (FML) owns and operates the Wedron Silica Company raw sand processing facility located at 3450 E. 2056th Road, Wedron, LaSalle County, Illinois. Wedron Silica Company is considering a sand cooler replacement project at its existing operation.

Enclosed are two (2) completed PTC applications for the Wedron Silica Company facility. The application addresses all applicable requirements for regulated processes at the facility. The signed and dated Illinois Environmental Protection Agency (IEPA) forms can be found in Appendix A of the enclosed Technical Support Document. Also attached is a fee payment in the amount of \$7,000 pursuant to IEPA Form 197-FEE.

Should you have any questions or require additional information, I may be contacted at (800) 435-7856 ext. 8647. Questions related to the PTC application may also be directed to Mr. Tom Klotz of Vision Environmental-GZA at (248) 926-1199.

Sincerely,

FAIRMOUNT MINERALS, LTD.

David Bach Plant Manager

cc: T. Klotz – Vision Environmental-GZA

M. Schiefelbein – Fairmount Minerals, Ltd.

M. Wasilco – Fairmount Minerals, Ltd.



8585 PGA Drive Suite 101 Walled Lake, MI 48390 248-926-1199 FAX 248-926-5586 July 30, 2009 File No. 07.0061530.00

Mr. Michael Wasilco Fairmount Minerals, Ltd. 3993 West 28 Road Harrietta, MI 49638

Re: CONSTRUCTION PERMIT APPLICATION WEDRON SILICA COMPANY

Dear Mr. Wasilco:

Enclosed is a complete application for a Permit to Construct (PTC) for the Wedron Silica Company facility located in Wedron, Illinois. The PTC application addresses the proposed cooler replacement project and has been finalized based upon comments received by Wedron representatives during review of draft application documents.

The application was signed and submitted to the State of Illinois Environmental Protection Agency (IEPA) by Mr. David Bach of Wedron Silica Company on Friday, July 24, 2009. Mr. Bach has retained a copy of the application with the signed forms for the facility's files. The attached copy of the signed application is being provided for your files. We will continue to follow-up with the IEPA to request an expedited review of the application in order to secure a PTC in a timely manner.

I may be contacted at (248) 926-1199 should there be any questions.

Sincerely,

VISION ENVIRONMENTAL-GZA

Thomas C. Klotz

Thomas C. K

Project Manager

Anthony F. Percha Consultant Reviewer

John A. Schneider, P.E. Associate Principal

cc w/ enc.:

D. Gerber – Fairmount Minerals, Ltd.

M. Melton – Fairmount Minerals, Ltd. C. Rautiola – Fairmount Minerals, Ltd.

M. Schiefelbein-Fairmount Minerals, Ltd.



8585 PGA Drive Suite 101 Walled Lake, MI 48390 248-926-1199 FAX 248-926-5586 July 23, 2009 File No. 07.0061530.00

Mr. David Bach Wedron Silica Company 3450 E. 2056th Road Wedron, IL 60557

Re: CONSTRUCTION PERMIT APPLICATION WEDRON SILICA COMPANY

Dear Mr. Bach:

Enclosed is a complete application for a Permit to Construct (PTC) for the Wedron Silica Company facility located in Wedron, Illinois. The PTC application addresses the proposed cooler replacement project and has been finalized based upon comments received by Wedron representatives during review of draft application documents.

Enclosed please find three (3) bound hard-copies of the PTC application. One (1) copy is for your files. The other two (2) copies must be sent to the State of Illinois Environmental Protection Agency (IEPA). Note that your signature and date is required on several forms. The forms have been marked with a tab where your signature and date is required.

Please make a copy of all signed forms and the cover letter and send the copies back to my attention. We will prepare bound copies of the final application which includes the signed forms and cover letter for Wedron personnel.

We have also attached a cover letter addressed to the IEPA that can be copied on plant letterhead and signed. A check in the amount of \$7,000 made payable to "Illinois Environmental Protection Agency" must also be enclosed with the two signed, bound copies for submittal to the IEPA. We recommend that the entire package be submitted via certified or overnight mail to assure confirmation of delivery.

I may be contacted at (248) 926-1199 should there be any questions.

Sincerely,

VISION ENVIRONMENTAL-GZA

Thomas C. Kty

Thomas C. Klotz

Project Manager



PERMIT TO CONSTRUCT APPLICATION

TECHNICAL SUPPORT DOCUMENT

WEDRON SILICA COMPANY COOLER REPLACEMENT PROJECT

Prepared for:

FAIRMOUNT MINERALS, LTD. WEDRON SILICA COMPANY

3450 East 2056th Road Wedron, Illinois 60557

Prepared by:

VISION ENVIRONMENTAL-GZA

8585 PGA Drive, Suite 101 Walled Lake, MI 48390 (248) 926-1199

July 2009

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1.0 INTRODUCTION

Fairmount Minerals, Ltd. owns and operates the Wedron Silica Company (Wedron) located at 3450 East 2056th Road, Wedron, LaSalle County, Illinois. The Wedron facility has been in operation for over 100 years producing high purity, round grain silica sand. Wedron consists of a sand mining site and a sand processing plant. In the State of Illinois, aggregate mining operations are regulated by the Illinois Department of Natural Resources (IDNR) Office of Mines and Minerals. The mining operations and the processing plant are also regulated by the Illinois Environmental Protection Agency (IEPA) with regard to environmental quality issues.

Wedron is considering the installation of a single new raw sand cooler to replace two (2) existing coolers in operation. In order to support the new cooler system, additional equipment will be installed including three (3) new belt conveyors. The proposed new cooler will include a wet scrubber for control of particulate matter (PM) emissions associated with cooling and raw sand transfer operations. Two (2) existing belt conveyors will also be modified for improved PM emissions control. Additionally, six (6) existing belt conveyors and one (1) hopper will be decommissioned as part of the proposed project. Overall, the new cooler system will possess fewer emission points, provide improved control of PM emissions, and result in an overall net decrease in emissions.

The above-described installations have been evaluated and determined to trigger the need to obtain a PTC from the IEPA, pursuant to Section 201.142 of the Illinois Administrative Code (Title 35). The evaluation provided herein addresses the requirements to obtain a PTC from the IEPA Bureau of Air (BOA). This Technical Support Document serves as supplemental information to Form 199-CAAPP for a "Construction Permit Application for a Proposed Project at a CAAPP Source." Appendix A includes Form 199-CAAPP, in addition to other forms required by the IEPA-BOA.

2.0 BACKGROUND

2.1 Existing Permits and Operations

The Wedron facility is currently subject to Operating Permit No. 73031358 issued by IEPA most recently on July 16, 2007. Certain equipment located at the facility is also subject to New Source Performance Standard (NSPS), 40 CFR 60, Subparts A and UUU. The Potential-to-Emit (PTE) for each of the criteria pollutants (NOx, CO, VOM, SO₂, and PM₁₀) and for a single Hazardous Air Pollutant (HAP) and combined HAPs was previously determined to be less than the Title V major source thresholds. Wedron is also currently subject to Construction Permit No. 06080002 which specifically addresses Rotary Sand Dryer #2.

Wedron is in the process of preparing a Clean Air Act Permit Program (CAAPP) application pursuant to Section 39.5 of the Illinois Environmental Protection Act for submittal to the IEPA-DAPC. The facility is subject to the CAAPP program as the Technisand Wedron facility, also owned and operated by FML and considered contiguous to the Wedron facility for purposes of the Title V program, has proposed modifications expected to increase the potential-to-emit (PTE) above the major source threshold for an individual HAP. The CAAPP permit, once issued, will replace the existing Wedron Operating Permit.

2.2 Proposed Changes

The Wedron Silica Company is proposing to install one (1) fluidized bed sand cooler with the capacity to cool up to 300 tons of sand per hour (TPH). The two (2) existing coolers proposed for replacement are also fluidized bed coolers, however, maintenance issues are prompting their replacement as they have been in continuous operation since 1982. Three (3) new belt conveyors will also be installed to transport sand into and out of the proposed cooler. The proposed sand cooler will be controlled by a 60,000 acfm wet scrubber for removal of PM emissions. PM emissions from all proposed emission points will be controlled by wet scrubbers. In addition, two (2) existing conveyors will be routed to alternate wet scrubbers to provide superior overall control. An existing belt conveyor will also be reduced in length which will not result in any change to emissions. A process flow diagram of the proposed changes is provided as Figure 2.

Additional descriptions and potential emissions from the proposed project are detailed in Table 1.

In order to assess air permit and regulatory applicability, state and federal air quality programs have been evaluated respective to the proposed installations. Section 3 provides an applicability determination for each program.

3.0 REGULATORY ANALYSIS

3.1 Federal Regulatory Review

3.1.1 Federal New Source Review

The Wedron facility is located within an area that has attained the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. The facility is not presently considered a major stationary source under federal New Source Review-Prevention of Significant Deterioration (PSD) Regulations because potential emissions of criteria pollutants do not exceed 250 tons per year. Accordingly, if a modification occurs at the facility, the modification itself must be considered major (i.e., result in an emissions increase greater than 250 TPY) in order to trigger a review under PSD.

The only criteria pollutant expected to be emitted from the proposed operation is particulate matter (PM/PM₁₀) from the processing of raw silica sand. Potential emissions of PM/PM₁₀ from sand processing were estimated based on emission factors provided in the United States Environmental Protection Agency (USEPA) FIRE v. 6.24 Database.

Emissions from sand processing through the proposed fluidized bed cooler ("FB3-010") and two (2) conveyors ("BC3-022" and "BC3-023") will be controlled by a new wet scrubber ("WS3-070") while the third conveyor ("BC3-021") will be controlled by an existing wet scrubber ("WS3-020"). The PM₁₀ PTE for each sand processing unit is calculated based upon an emission factor of 0.0013 lb PM₁₀/ton material for SCC 3-05-027-60 for Industrial Sand and Gravel Handling, Transfer, and Storage, based upon use of a wet scrubber control device. Although the emission factor is based on PM emissions, PTE for PM₁₀ has been conservatively assumed to equal PM. Potential PM₁₀ emissions are calculated as follows:

PM₁₀ PTE (Cooler)

Potential Emissions = (1 cooler) * (300 tons/hr) * (8,760 hrs/yr) * (0.0013 lbs) $PM_{10}/ton) / (2,000 \text{ lbs/ton})$

$= 1.7 \text{ TPY PM}_{10}$

PM₁₀ PTE (3 Belt Conveyors)

Potential Emissions = (3 conveyors) * (300 tons/hr) * (8,760 hrs/yr) * (0.0013 lbs) $PM_{10}/ton) / (2,000 \text{ lbs/ton})$

$= 5.1 \text{ TPY PM}_{10}$

Other changes proposed within this project include re-routing emissions to different wet scrubber controls. Emissions from existing belt conveyor "BC3-070" will be re-routed from existing wet scrubber "WS3-050" to existing wet scrubber "WS3-010." Emissions from existing belt conveyor "BC3-080" will be re-routed from existing wet scrubber "WS3-050" to proposed wet scrubber "WS3-070." Also, existing belt conveyor ("BC3-080") will be shortened in length. However, these changes are not expected to result in any change in emissions.

As a result of the aforementioned changes, the combined PM_{10} PTE from the new installations is approximately **6.8 TPY** (1.7 TPY + 5.1 TPY) based on the use of best available emission factors. However, the overall PM_{10} PTE is expected to <u>decrease</u> by approximately **15.1 TPY** due to the elimination of the existing coolers and certain associated equipment (i.e., conveyors and a hopper). It is also expected that combustion-related emissions will decrease by approximately 2% as the new cooling operation will be more efficient allowing sand with a higher moisture content to exit the dryer and be processed by the new cooler.

Table 1 provides a summary of the PM₁₀ PTE for the proposed installations, modifications, and decommissioned equipment as part of the proposed cooler replacement project. As the summary suggests, the maximum potential emissions for the proposed installations will not exceed the PSD major modification thresholds (i.e., 250 TPY of any criteria pollutant). Therefore, the

installation does not meet the definition of a major modification to an existing minor source and is not subject to review under federal NSR.

3.1.2 New Source Performance Standards

Certain equipment currently present at the Wedron facility is subject to New Source Performance Standards (NSPS). In particular, the Wedron facility is subject to 40 CFR Part 60, Subpart UUU standards of performance for calciners and dryers in mineral industries. Two (2) dryers currently present at the facility are subject to Subpart UUU as construction commenced after the effective date of the rule; April 23, 1986. The scope of the proposed cooler replacement project will not affect the dryer or applicability of NSPS Subpart UUU.

Additionally, 40 CFR Part 60, Subpart OOO standards of performance for Nonmetallic Mineral Processing Plants with capacities greater than 25 tons per hour for fixed sand and gravel plants constructed, reconstructed or modified after August 31, 1983, are <u>not</u> applicable to the existing Wedron facility. As the Wedron facility does not "crush or grind" sand to reduce the particle size of the sand, the Wedron operations are not considered an "affected facility" subject to the NSPS Subpart OOO standard.

3.1.3 Hazardous Air Pollutants 112(g) Applicability

The Wedron complex is considered a major source of HAPs due to emissions of organics from the Technisand Wedron resin-coating operation. However, the proposed cooler replacement project is not expected to generate HAP emissions. HAP emissions should actually decrease as a result of an expected decrease in natural gas combustion from the dryers. Therefore, there are no applicable Maximum Achievable Control Technology (MACT) requirements under Rule 112(g) as there are no new or reconstructed sources of HAPs being proposed as part of the cooler replacement project.

3.1.4 Hazardous Air Pollutants 112(d) Applicability

There are no Categorical MACT standards under Section 112(d) which apply to the Wedron facility.

3.2 State Regulatory Review

3.2.1 State New Source Review

The State of Illinois environmental regulations for air pollution were evaluated to determine if the proposed cooler replacement project at Wedron is exempt from the requirement to obtain a PTC pursuant to Title 35: Subtitle B, Chapter I, Section 201.142 which states the following:

"No person shall cause or allow the construction of any new emission source or any new air pollution control equipment, or cause or allow the modification of any existing emission source or air pollution control equipment, without first obtaining a construction permit from the Agency."

The state air pollution control regulations contain a list of emission sources and associated air pollution control equipment which are considered exempt from the requirement to obtain a PTC. A complete list of current exemptions from the requirement to obtain an air permit can be found under Title 35: Subtitle B, Chapter I, Section 201.146. If an emission source does not fit within one of the permit exemptions, an air pollution control construction permit must be obtained from the Bureau of Air prior to construction of the emission source.

Upon review of the exemptions from state permit requirements, it has been determined that a specific exemption does not exist for industrial sand processing operations. Furthermore, the state permit exemptions do not appear to address "like-kind replacements" such as the proposed cooler system replacement.

The only other potentially applicable exemption is provided at Section 201.146(kkk) which exempts a CAAPP source from the requirement to obtain a PTC for the construction or modification of an emission unit or activity that is an "insignificant activity" as addressed by Section 201.210 or 201.211. Upon review of these sections, Section 201.211(1) states that a CAAPP source may propose to the Agency in its CAAPP application that an emission unit at the source be treated as an insignificant activity provided the emission units meets the following criteria:

"The emission unit would not emit more than 1.0 lb/hr of any regulated air pollutant not listed as hazardous pursuant to Section 112(b) of the Clean Air Act in the absence of air pollution control equipment."

The following calculations were performed to determine if any of the proposed changes to the cooler system would result in uncontrolled emissions less than 1.0 lb/hr of PM₁₀. The PTE for an uncontrolled belt conveyor is based upon an emission factor of 0.0064 lb PM₁₀/ton material for SCC 3-05-025-03 for Construction Sand and Gravel Transfer and Conveying without air pollution control. Although emission factors for *industrial* sand processing are typically more appropriate, an "uncontrolled" emission factor for industrial sand transfer or conveying is not available. Therefore, this particular emission factor for *construction* sand processing is considered the most accurate of the emission factors available for uncontrolled *industrial* sand transfer equipment. Potential uncontrolled PM₁₀ emissions are calculated as follows:

PM₁₀ PTE Uncontrolled (Belt Conveyors)

Potential Emissions = $(1 \text{ conveyor}) * (300 \text{ tons/hr}) * (0.0064 \text{ lb PM}_{10}/\text{ton}) /$ (2,000 lbs/ton)

=1.92 lbs/hr PM₁₀

As demonstrated by the calculation above, the proposed conveyors on an uncontrolled basis could not individually satisfy the insignificant activity provision of Section 201.211(1). Accordingly, the cooler unit and any other changes to the system did not require further investigation.

Based upon a comprehensive review of the state air pollution control regulations and air permit exemptions, it has been determined that a PTC is required for the proposed cooler replacement project pursuant to Title 35: Subtitle B, Chapter I, Section 201.142. Submittal of a PTC application which addresses the State of Illinois' minor NSR program requirements will satisfy the Section 201.142 requirement.

The facility will also be required to obtain an operating permit for the proposed equipment. As previously indicated, Wedron is in the process of preparing a CAAPP operating permit application for submittal to the IEPA-BOA. The CAAPP permit, once issued, will replace the existing Wedron Operating Permit. Wedron will be prepared to submit an operating permit application or addendum to the CAAPP application as required by the IEPA-BOA.

3.2.2 State of Illinois Rules and Regulations – Subpart K: Fugitive Particulate Matter

The air pollution control rules contain standards and limitations for particulate matter emissions in Part 212 Subpart K of the Illinois Administrative Code (Title 35). The standards applicable to the proposed project have been addressed below.

3.2.2.1 Section 212.301 (Rule 301) - Fugitive Particulate Matter

This section states:

"No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source."

Wedron is currently subject to this requirement and the proposed equipment will also be subject to this requirement.

3.2.2.2 Section 212.307 (Rule 307) – Materials Collected by Pollution Control Equipment

This section states:

"All unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods."

As previously indicated, the proposed emission units will be controlled by a wet scrubber. Consequently, Wedron will continue to be required to unload and transfer all materials collected by the control devices in accordance with a method or equivalent method to those provided in Rule 307.

3.2.2.3 Section 212.308 (Rule 308) – Spraying or Choke-Feeding Required

This section states:

"Crushers, grinding mills, screening operations, bucket elevators, conveyor transfer points, conveyors, bagging operations, storage bins and fine product truck and railcar loading operations shall be sprayed with water or a surfactant solution, utilize choke-feeding or be treated by an equivalent method in accordance with an operating program."

The proposed project will include the installation of multiple conveyors. The equipment will be incorporated into the facility's Fugitive Dust Plan. Accordingly, Wedron will continue to meet the requirement of Rule 308.

3.2.2.4 Section 212.309 (Rule 309) – Operating Program

This section states:

"a) The emission units described in Sections 212.304 through 212.308 and Section 212.316 of this Subpart shall be operated under the provisions of an operating program, consistent with the requirements set forth in Sections 212.310 and 212.312 of this Subpart, and prepared by the owner or operator and submitted to the Agency for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions."

Wedron plans to update its Fugitive Dust Plan (i.e., "operating program") to accommodate the equipment modifications contained in this application. The Fugitive Dust Plan will be updated in accordance with the minimum requirements listed in Rule 310 as well. An amended Plan will be submitted to the Agency for review pursuant to Rule 312.

3.2.3 State of Illinois Rules and Regulations – Subpart L: Particulate Matter Emissions From Process Emission Units

Section 212.321 (Rule 321) requires that process emission units for which construction or modification commenced on or after April 14, 1972 shall not cause or allow the emission of PM into the atmosphere in any one hour period to exceed the allowable emission rate.

The lowest, maximum process weight rate for the proposed cooler and conveyors is 300 TPH. Utilizing the process weight rate equation $(E = A*P^B)$ provided in Rule 321, the allowable emission rate for the proposed emission units can be calculated as follows:

$$E = A*P^B$$

P = Process weight rate;

E = Allowable emission rate;

$$A = 2.54$$

$$B = 0.534$$

$$E = 2.54 * (300 \text{ TPH})^{0.534} = 53.4 \text{ lb PM/hr}$$

Based upon the process weight rate, the allowable emission rate for individual emission units proposed herein is 53.4 lb PM/hr. In order to demonstrate compliance with this requirement, the potential PM emissions have been calculated on an hourly basis. The emission units with the greatest hourly PM emissions level are the conveyors. As calculated in Section 3.2.1, the potential, uncontrolled hourly emissions for each conveyor are 1.92 lbs/hr PM₁₀.

As the potential hourly PM/PM_{10} emissions for each proposed emission unit is less than the allowable emission rate calculated utilizing the process weight rate equation, it can be assumed that all of the proposed emission units will satisfy Rule 321.

4.0 CONCLUSION

Based upon the information contained herein, Fairmount Minerals, Ltd. believes the proposed cooler replacement project is required to obtain a construction permit from the Illinois Environmental Protection Agency (IEPA) and meets all applicable air pollution control requirements. However, the proposed project does not meet the definition of a major modification to an existing minor source and is not subject to review under federal New Source Review. The proposed project is also not subject to the New Source Performance Standards or Maximum Achievable Control Technology requirements.

An operating permit application will be submitted by the facility in the future to address the proposed cooler replacement project as required by the IEPA.